

REMARKS

The Office Action included a restriction requirement that identified two inventions. Invention I for claims 1-13 and 21-26 and Invention II for claims 14-20. Applicants hereby confirm the election of claims 1-13 and 21-26 and cancel claims 14-20 without traverse.

In the Office Action, claims 1-4 and 11-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chung et al. (U.S. Patent No. 6,278,973, hereinafter Chung) in view of Woods, Transition Network Grammars for Natural Language Analysis, Communications of the ACM, Vol. 13, No. 10, October 1970 (hereinafter Woods).

The combination of Chung and Woods does not show or suggest the invention of claim 1. In particular, neither of these references shows or suggests a transition entry that has a last-transition value that indicates that the transition entry is the last transition from a state.

In the Office Action, it was asserted that Woods showed this limitation on page 593, col.2 because it showed a POP arc that indicates whether the current state is to be considered a final state. Applicants respectfully dispute this assertion.

First, a final state as found in Woods is different from a last transition from a state. Thus, the POP transition entry in Woods does not indicate that this transition is the last transition that extends from a state. For example, in Fig.3 on page 594, there are PUSH transitions listed after the POP transitions for states Q4 and Q5, which shows that the POP transition is not the last transition listed for those states.

Thus, a POP transition does not indicate that it is the last transition from a state. Instead, the POP transition indicates that there are no further states after the POP transition.

Second, Woods does not suggest the need for a transition entry that indicates that it is the last transition

from a state. Under Woods, the transitions are grouped with states by explicitly including the states in the arc set. Thus, it is clear which transitions extend from which states in Woods without the need for a transition entry that indicates that it is the last transition from a state.

Since Woods does not show a value in a transition entry that indicates that the transition is the last transition from a state and since Woods does not need such a value, the combination of Woods and Chung does not show or suggest the invention of claims 1-4 and 11-13.

The Office Action rejected claims 5-10 under 35 U.S.C. § 103(a) as being unpatentable over Chung in view of Woods and further in view of Shapiro, *Generalized Augmented Transition Network Grammar for Generation from Semantic Networks*, American Journal of Computational Linguistics, Volume 8, Number 1, 1982 (hereinafter Shapiro).

This combination of references does not show or suggest the invention of claims 5-10 because none of the cited references show or suggest a transition entry with an index value that is an index into a word string.

In the Office Action, claim 5 was rejected by citing page 15, column 1 of Shapiro. In particular, the Office Action stated that this section of Shapiro showed an input buffer that states where a word string will start within a stack. Applicants respectfully dispute this assertion.

In the cited section of Shapiro, the input buffer and the stack are the same thing. Thus, the input buffer does not indicate where a word string will start within a stack, since it is the stack. Further, none of the transition entries in Shapiro provide an index into the stack/input buffer.

Further, in Shapiro, a word associated with a transition entry is stored in the transition entry. For example, in FIG. 8, the word "BY" is stored in the transition entry. This

causes the size of such entries to be dependent on the words in the entry. The invention of claim 5 overcomes this problem by providing an index into a word string in the transition entry instead of placing the word itself in the transition entry. This allows all of the transition entries of the present invention to be the same size. Shapiro does not show such a system. Instead, Shapiro places the words in the transition entries, making each transition entry's size dependent on the word it contains. Thus, Shapiro is significantly different from the invention of claim 5.

Since none of the cited references show a transition entry that includes an index into a word string, the combination of these references does not show or suggest the invention of claim 5 or claims 6-10, which depend therefrom.

Dependent claim 7 is additionally patentable over the cited art. In claim 7, at least one transition entry includes an index to a rule entry that represents a group of transitions. None of the cited references show or suggest a transition entry that includes an index to a rule entry.

In the Office Action, page 15, column 2 of Shapiro was cited to reject claim 7. However, the cited section makes no mention of a transition entry that includes an index to a rule entry that represents a group of transitions. The Office Action stated that "Shapiro teaches entries into lexical feature list, each such list containing rules for providing roots and categories." However, such "rules" do not represent a group of transitions as found in claim 7 (see claim 6). Further, the feature list does not provide an index to the roots and categories but instead directly describe the roots and categories. No index is provided.

Since Shapiro does not provide a transition entry with an index to a rule entry that represents a group of transitions, the combination of cited references does not show or suggest the invention of claim 7.

Dependent claim 9 is also additionally patentable over the cited art. In claim 9, each rule entry is a same fixed size as all other rule entries. None of the cited references show rule entries that represent a group of transitions and that all have the same fixed size. As such, claim 9 is additionally patentable over the cited references.

Claims 21 and 26 were rejected under 35 U.S.C. §102(e) as being anticipated by Chung.

With the present amendment, claim 21 has been amended to clarify that each transition entry in the speech grammar has a same fixed size as all other transition entries in the speech grammar. Chung does not show or suggest transition entries of the same size. Instead, under Chung, the transitions of FIG. 1 represent words of different lengths and as such have different sizes. For example, the word "information" is larger than the word "file".

Thus, Chung does not address the problem solved by the invention of claim 21. In particular, by having transition entries that are the same size, claim 21 allows for more efficient access to a particular transition entry. Under systems like Chung, the variability of the word lengths associated with each transition makes it difficult to compute where a particular transition will be stored in the grammar. Having each transition entry the same fixed size, makes this computation easier. As such, claim 21 address a problem that is not even contemplated by Chung. Therefore, Chung does not show or suggest the invention of claim 21 or claims 22-26, which depend therefrom.

Claim 22 was rejected under 35 U.S.C. §103(a) as being unpatentable over Chung in view of Woods and further in view of Shapiro. The cited combination of references fails to show several features of claim 22.

First, none of the cited references show a rule entry that represents a collection of transition entries and that

includes an index to a transition entry that represents the first transition in the collection. In the Office Action, it was asserted that Shapiro shows a lexicon that contains rules representing categories and roots. Applicants note that Shapiro does not refer to the lexicon entries as rules. In addition, these "rules" do not represent a collection of transitions. As such, the Shapiro lexicon is not relevant to the present invention. Further, the "rules" in Shapiro do not include an index to a transition entry. Chung and Woods also fail to show a rule entry that contains an index to a transition entry. As such, the combination of these three references does not show or suggest a rule entry that includes an index to a transition entry.

Second, none of the cited references show a set of rule entries that are all the same size.

Since the cited references do not show rule entries that are the same size as each other or rule entries that include an index to a transition entry, the combination of these references does not show or suggest the invention of claim 22.

Claims 23-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chung in view of Woods.

Claims 23-25 depend from claim 21 and thus include the limitation to a set of transition entries that are all the same size. As noted above, this limitation is not shown in Chung. It is also not shown in Woods. In Woods, the arcs are shown as having different lengths. Thus, the lengths of the arc entries are variable, not fixed, and are different for different entries.

This is substantially different from the invention of claims 21-26 where the transition entries are the same size as each other.

Since neither Chung nor Woods shows or suggests transition entries that are the same fixed size as each other, the combination of these two references does not show or suggest the invention of claims 21-26.

In addition, claim 23 is additionally patentable over the cited combination. In particular, neither Chung nor Woods shows or suggests that each transition entry comprise a last transition flag that indicates whether the transition is the last transition from a state as found in claim 23.

In the Office Action, it was asserted that since Woods shows an arc containing information expressing if a state is a final state, it shows the limitations of claim 23. However, indicating that a state is a final state is different from indicating whether a transition is a final transition from a state. In addition, neither Woods nor Chung shows a flag in each transition entry. In fact, neither reference shows a flag in any transition entry that is capable of indicating that the transition is the last transition from a state.

In light of the above remarks, claims 1-13 and 21-26 are in form for allowance. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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